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10/552,715	06/30/2006	Peter Schreiber	8071.004.PCUS00	6818

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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT

PAPER NUMBER

2886

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/552,715

**Applicant(s)**

SCHREIBER ET AL.

**Examiner**

/Michael P. Stafira/

**Art Unit**

2886

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/02)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

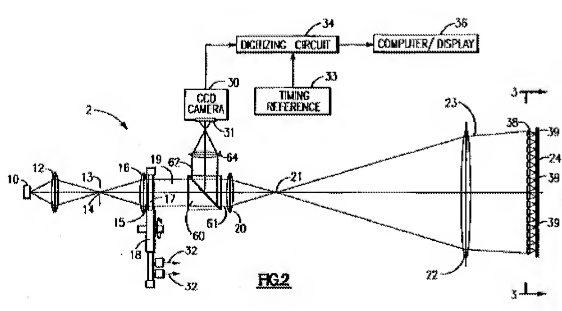
4. Claims 1- 4, 6, 8, 17, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mumola ('919).

#### **Claim 1**

Mumola ('919) discloses at least one collimating optical element (Fig. 2, Ref. 16), wherein the at least one collimating optical element has an optical axis (See Fig. 2); and at least two focusing optical elements (Fig. 2, Ref. 38), wherein each of the at least two focusing optical elements has an optical axis (See Fig. 2), wherein the optical axes of the focusing optical

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elements are aligned parallel to the optical axis of the at least one collimating optical element (See Fig. 2), and wherein at least two optical axes of the focusing optical elements (Fig. 2, Ref. 38) are not collinear; wherein light is directed through the at least one collimating optical element (Fig. 2, Ref. 16) that collimates in the direction of the reflecting surface (Fig. 2, Ref. 24), through the at least two focusing optical elements (Fig. 2, Ref. 38) that focus in the direction of the reflecting surface (Fig. 2, Ref. 24), and onto the reflecting surface that reflects the light (See Fig. 2).

**Claim 2**

Mumola ('919) further discloses several focusing optical elements (Fig. 2, Ref. 38) form a row arrangement along an axis (See Fig. 2).

**Claim 3**

Mumola ('919) discloses the focusing optical elements (Fig. 2, Ref. 38) are arranged equidistantly from one another (See Fig. 2).

**Claim 4**

Mumola ('919) further discloses the focusing optical elements (Fig. 2, Ref. 38) are arranged at a constant distance from the collimating optical element (Fig. 2, Ref. 16).

**Claim 6**

Mumola ('919) further discloses the convex surfaces of the focusing optical elements (Fig. 2, Ref. 38) are aspherically curved (See Fig. 2).

**Claim 8**

Mumola ('919) further discloses that the convex surface of the collimating optical element (Fig. 2, Ref. 38) is aspherically curved (See Fig. 2).

**Claim 17**

Mumola ('919) discloses free spaces are present between focusing optical elements (Fig. 3).

**Claim 18**

Mumola ('919) discloses one further beam-shaping optical element (Fig. 2, Ref. 20) is arranged between a collimating optical element (Fig. 2, Ref. 16) and the focusing optical element (Fig. 2, Ref. 38).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mumola ('919) in view of Chao et al. ('515).

**Claim 9-14**

Mumola ('919) substantially teaches the claimed invention except that it does not show the light is directed through a first optical fiber, through the at least one collimating optical element that collimates in the direction of the reflecting surface, through the at least two focusing optical elements that focus in the direction of the reflecting surface, onto the reflecting surface that reflects the light through the first optical fiber to an optical detector with the end face of the at least one further optical fiber, into which the reflected light can be coupled, is arranged immediately next to the end face of the first optical fiber from which light from the light source exits. Chao et al. ('515) shows that it is known to provide the light is directed through a first optical fiber, through the at least one collimating optical element that collimates in the direction of the reflecting surface, through the at least two focusing optical elements that focus in the direction of the reflecting surface, onto the reflecting surface that reflects the light through the first optical fiber to an optical detector with the end face of the at least one further optical fiber, into which the reflected light can be coupled, is arranged immediately next to the end face of the first optical fiber from which light from the light source exits with the end face of the at least one further optical fiber, into which the reflected light can be coupled, is arranged immediately next to the end face of the first optical fiber from which light from the light source exits (Fig. 4a, Ref. F, F1, F2) for an optical detection system. It would have been obvious to combine the device of Mumola ('919) with the optical fiber arrangement of Chao et al. ('515) for the purpose of providing the ability to place the source and detector at a distance from the sensor area, therefore

reducing the amount of noise captured in the optical system which makes the measured data more accurate.

Mumola ('919) in view of Chao et al. ('515) discloses the claimed invention except for a fiber brancher/backward coupler. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) and Chao et al. ('515) with the brancher/backward coupler since it was well known in the art that using a coupler reduces the amount of fiber needed to take measurements, therefore reducing cost of the apparatus and size.

Mumola ('919) in view of Chao et al. ('515) discloses the claimed invention except for the optical fiber is at an obliquely inclined angle or offset from the optical axis or orthogonal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) and Chao et al. ('515) with the different alignments of the optical fiber since it was well known in the art that having the fiber at different angle can reduce the amount of noise for the optical source from entering the optical fiber, therefore increasing the sensitivity of the measurement.

Mumola ('919) in view of Chao et al. ('515) discloses the claimed invention except for a grating at the end face of the optical fiber. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) and Chao et al. ('515) with the grating since it was well known in the art that a grating can separate light into different components, therefore allowing the apparatus to selectively block certain components from reaching the detector.

7. Claims 5, 7, 15-16, 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Chao et al. ('515).

**Claim 5**

Mumola ('919) discloses the claimed invention except for the focusing optical element is constructed of a cylindrical lens. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) with the cylindrical lens since it was well known in the art that using a cylindrical lens increases the area at which can be inspected at one time, therefore decreasing the amount of time needed to scan a surface.

**Claim 7**

Mumola ('919) discloses the claimed invention except for the collimating optical element is a plano-convex optical lens. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) with the plano-convex optical lens since it was well known in the art that light traveling through the lens will converge to a spot on the axis, at a certain distance behind the lens giving a focal length, therefore increasing or decreasing the optical power.

**Claim 15**

Mumola ('919) discloses the claimed invention except for the light source is an LED or laser diode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) with an LED or laser diode since it was well known in the art that LED's and diodes have longer illumination life, therefore decreasing the amount of maintenance needed.



**Claim 16**

Mumola ('919) discloses the claimed invention except for the reflecting surface is part of a pellicle or is arranged on a pellicle. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) with a pellicle since it was well known in the art that it is a known reflecting surface, therefore increasing the reliability of the measured light.

**Claim 21**

Mumola ('919) discloses the claimed invention except for the arrangement forms an optical microphone. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Mumola ('919) with the optical microphone since it was well known in the art that an optical microphone produces less noise and therefore is more accurate.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael P. Stafira/  
Primary Examiner  
Art Unit 2886

July 7, 2008